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ABSTRACT

This paper examines research findings about language development and their implications for classroom teaching. It first discusses early analyses of child grammar, which led to descriptions of the telegraphic nature of the speech of very young children and to the classification of child grammar into pivot and open classes. It then points out limitations of the concept of pivot grammar noted by later researchers and describes recent investigations of child language that reveal a shift from pure syntactical descriptions to descriptions involving semantics. The paper then discusses many classroom-related aspects of language development. Among the topics it considers are the use of syntactic indexes to determine a child's level of language development; ways of helping children deal with language representing spatial and other complex concepts; the importance of creating a language rich classroom environment to enhance children's language development; and the role of the classroom in ensuring that children have the necessary interaction to add continually to their knowledge of word meanings. (GW)

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SOME THOUGHTS ON LANGUAGE DEVELOPMENT

Paper presented at the Twenty-First Annual Convention,

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Many studies of the development of child language have been conducted during the last decade. These studies are not merely random collections of language, but are attempts to formulate grammars that describe the child's language. The early attempts worked with records of the language that a child uttered from varying points in the child's life. Often recordings were made from the very first utterance the child made. Such recordings have been valuable in that they have made us aware of the capacity for language children possess. In the beginning they may randomly produce sounds common to all languages; but this universality is gradually restricted by the children in their utterances, so that they eventually produce only the sounds of their native language.

Once the child goes on to making meaningful sounds, it is possible to formulate rules to account for these utterances. The earlier studies done by Braine, Brown and others made attempts to analyze the utterances made by the children. Notes were made of the elements and structures that seem to constitute child grammar. Such terms as telegraphic, pivot and open class have been used to describe child grammar.

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It has been noted by many investigators--Brown and Fraser (1963), Brown and Bellugi (1964)--that indeed children seem to use only parts of the sentence or a part of the words that make up our language when making early attempts at communication.

In a study involving six children who were two- and three-year-olds, Brown and Fraser (1963) found that younger children tended to preserve nouns, verbs, adjectives and pronouns but they omitted articles, prepositions, the verb (copular) be and auxiliary verbs. These omissions were made even though the task given the children was to imitate 13 simple English sentences. In addition to the types of words omitted, the young children were found to omit many of the inflectional endings as well. It has been noted that as children increase in age they omit fewer and fewer of the prepositions, adjectives and inflectional endings.

Since the speech of the child, which is actually the bare rudiments of adult speech, is condensed much the same way that an economic adult would use in sending a telegram, Brown and Fraser referred to this stage of child language as telegraphic speech.

Example: I want a glass of water.

Brown and Bellugi (1964) further confirmed the presence of telegraphic speech--they found it in both imitations and spontaneous speech. They tend to reject memory limitations as an explanation of the kinds of sentences produced, but instead suggest that the real limitation lies in the complexity of grammar and semantics that can be processed by the child.

Their explanation is in agreement with the observation of Piaget and Vygotsky. Piaget (1926, 1928) has reported that children communicate freely with their environment through language. By listening to spoken

words (and later through the reading process also), children are able to take in information about the world--past, present and future. Their inner mental processes make use of language to manipulate learnings, to make associations and to complete logical associations and deductions. Piaget believes that children continuously use language in accommodating to the environment. From his observations, Piaget concluded that grammar precedes logic, for he learned that children use relational terms in speech before they grasp the structures of meaning corresponding to the syntactic forms they use. In other words, it appears that children acquire expressions for communication without processing meaning for isolated parts.

Vygotsky (1934) corroborated the findings of Piaget, indicating that children acquire some structures of oral language through imitation of elders and peers. It is later that they become more aware of meanings that others attribute to words and incorporate these features of meaning into their repertoire of words.

This is not to say that the child does not have some meanings for the words that he is using. Quite often the young child will use body language as well as intonation to be sure that intended meanings are communicated. As long as he is using all these parts of communication, the child does not add the little words to his vocabulary. It is only through contact with adults and peers that he hears how the adult language expresses thoughts and desires, such as "I want a glass of water."

In formulating descriptions of the telegraphic nature of the child's speech, attempts were made to classify the words that the child uses. Order is a very important part of our English language, as illustrated in the sentence that must have been part of every ninth

grade grammar book in the world. It certainly was from the ones I had both as a student and a teacher.

"The boy shot the bear" and "the bear shot the boy" are certainly two entirely different thoughts. Order is found to be an important feature when describing child grammar as well.

In describing child grammar, Braine (1963) attempts to formulate productive rules for the initial stages in the acquisition of syntax. He studied the language of three children during the first four months after they had begun to use multi-word phrases. However, most of the sample that he had was made up of one and two-word utterances. It was these utterances that he used for drawing generalizations about child grammar.

There are two classes that Braine uses to describe child grammar: pivot and open class. The pivot class is composed of a small number of words and these tend to occur in several word combinations. In other words, each pivot word is associated with a particular position. The pivot words occur either at the beginning of an utterance or at the end of an utterance. The open class words contain the entire vocabulary of the child except the pivots. These words were not observed in a particular position, but could occur in isolation. Pivot and open classes were used to describe the structure of two-word utterances in the following way: Pivot - Open or Open - Pivot. Utterances more complex than these two-word utterances were taken to be part of the text developmental stage.

Other investigators--including Miller and Ervin, Brown and McNeill--utilize two word classes in describing child language. Miller and Ervin, in a study they conducted in 1964, analyzed the language of two children

in weekly 45 minute sessions. They called their two classes operators and nonoperators, in which a few high frequency words (operators) tend to be restricted to a given position in the sentence. These are obviously similar to Braine's pivot and open class description.

As noted by Miller and Ervin the difference between operator and nonoperator classes is not absolute. The division between the two classes is sometimes difficult to make--in other words there appeared to be an overlap between the categories.

Another more restrictive two-category classification is Brown's modifier + noun (O'Donnell, 1974). The other two systems function much more broadly than do Brown's but the analysis made by all three is very consistent.

This similarity is depicted by McNeill (1970) as he discusses the use of pivot and open class grammar. McNeill carries the concept of pivot grammar much further and makes the assumption that children organize their vocabularies into classes in which a sentence is made up of a pivot and a open class word. McNeill assumes that pivots do not occur alone or in combination with one another. His theory attempts to relate the pivot and open classes to universals of grammar and to adult competence.

McNeill is not the only one to encourage the use of pivot and open class grammar; Slobin (1969), who researched the international literature on child language, concludes that pivot and open classes might be a universal feature of early speech.

It was beginning to look as if a satisfactory descriptor of child language had been developed. For even though some had seen the two classifications as not being absolute, there seemed to be enough

agreement among investigators to warrant continued use of the terminology.

However, Bloom (1970) challenged the adequacy of pivot grammar. In her analysis of the language of these children, she found that a pivot grammar was adequate for the language of only one child. Upon close examination of the sample language obtained from her three subjects, she found that there were pivot-like constructions but these were not predominant. She observed that there were many combinations that could not be accounted for in pivot grammar. Not only was the applicability of pivot grammar for all children challenge, but other limitations are noted as well.

The greatest limitation of pivot grammar appears to be the lack of information that's inherently part of it. By that I mean when a child makes an utterance such as "Mommy sock," it could express at least two different meanings. The child could possibly be picking up a sock that belongs to the mother, or the child could be referring to the fact that the mother is putting the sock on the child's foot. Pivot grammar does not give any indication of the underlying concept or thought that is behind the communication.

Although children continue to play with rhyming and nonsensical words into the school years, as pointed out by both Piaget and Vygotsky, the child is certainly capable of thought, which is evidenced through his language.

Bloom, in pointing out the inadequacies of pivot grammar, attempts to formulate additional phrase structure rules which can account for the distinct underlying structures expressed in the child's utterances. Part of the difficulty met by Bloom lay in the fact that she follows the

Chomsky model (1965). However, she does attempt to use what Brown has described as "rich" interpretation (Brown, 1973).

The claim of universality for pivot grammar has been challenged by Bowman, who studied two Finnish children and established that the rules of pivot grammar were not applicable (Brown, 1973). The early promoters of pivot grammar appear to have focused in the syntax of child grammar without any consideration for underlying thought. Both Bloom and Schlesinger (1971) give attention to semantic aspects of language structure. Schlesinger refers to the concepts and relations that are preverbal as "I-markers" (intention markers). "I-markers" become sentences in the Schlesinger model through the operation of realization rules. These "I-markers" of sentences, concepts, and relations are said to be determined by the cognitive capacity of the child.

Thus one can note a shift from pure syntactical descriptions to descriptions that involve semantics--the meaning aspects of child language. Brown (1973) applies concepts of semantic structure in his description of the language of Adam, Eve and Sarah--the three children whose language he has studied intensively.

Others had previously recognized the limitations of pivot grammar in fully describing a child's language. Therefore, when recording the utterances, many notes were also made giving the context, surrounding, mother's feedback, etc. When the child said, "Mommy sock," the written description would indicate if the sock belonged to mommy or if mommy had to put the sock on the child.

Attempts were made to systematically categorize the child's language without having the diaries just mentioned. Schlesinger discussed the semantic relations found in a two-word utterance and described these

relations in the following manner: agent and action (Mail come.) and agent and object (Eve lunch). In other words, he began to put labels on the words used by the child to describe the relations--the underlying meanings expressed in the words.

Many other investigators (including Fillmore and Chafe) attempt to describe child language in terms of semantic relations. O'Donnell (1974) incorporates semantic roles and relations in a suggested grammar for describing language at various stages of development.

O'Donnell views language as consisting of three related components: a basal component, an operative component and an expressive component. The basal component is made up of underlying constructs which encode the thoughts that the speaker intends to express. The semantic construct must go through certain rules of syntax found in the operative component to be a communicable structure. Then the expressive component supplies the necessary phonological or graphic elements for speaking or writing.

In using these three components, O'Donnell has constructed a potentially useful system for describing language. His use of semantic roles to describe the related parts of an utterance aids in accurately depicting the meaning of the utterance at various stages of language development.

All this helps us to focus on the vast amount of knowledge that has been acquired in the area of language development. No longer are we merely looking at language in terms of pivot grammar, nor are we just using syntax to describe language. But investigators are looking at language in the most basic way--as a means for communication. How is it that a child masters this complex oral system of communication? What are the processes involved in learning a language? How can teachers provide an environment that is conductive to continued language

development? These are the questions that are now being asked by investigators.

Besides the information that can be obtained by examining the semantic structures in a child's language, there are syntactic indices that may be used to give a teacher an indication of the child's level of language development.

It has been noted that in the developmental sequence of language, order of conceptions comes first, grammatical categorization comes later, and inflections, prepositions, auxiliaries, etc. come even later (Schlesinger, 1971). This knowledge can be applied to children as they enter our schools. Their oral language can be recorded and assessed to see what language structures are being used by child. One very general measure for young children is the mean length of utterance. It is an excellent simple index of grammatical development because almost every new language feature acquired increases the length of an utterance. For children of school age, the mean number of words per terminable syntactic unit (T-unit) serves the same purpose. It is not a device that says a score such as 6.9 words per unit must be achieved by every child in first or second grade. This would be the wrong way to use the index. Merely, it is an indication of where the child is functioning at a given time in a given situation. Taken with other kinds of information, it reflects how the child's language is developing. It is necessary to be very careful at this point for no child's language should be classified as deficient simply because the child does not speak a standard dialect. The danger in using any kind of measuring device is that certain standards may be arbitrarily imposed. Of course,

one is well aware of the fact that half our kids are below the national average. If they were not, average wouldn't be average.

The main value of indices such as mean length of utterance or mean length of T-unit is that they enable anyone working with children to focus on the level of language development. Once one has focused on the developmental level of a child's language, one can begin to structure an environment conducive to a language enrichment that is most applicable to the child's needs.

The procedure for establishing the MLU is as follows.

Record an utterance from the child.

Count the number of morphemes in the utterance.

Divide by the number of sentences (complete thoughts) in the utterance.

Example - My mommy at home. 4

She like chocolate. 4

I go to the store tonight. 6

I buy the candy. 4

15/4 = 4.5

Morphemes are the number of words + the number of inflectional endings. The above example had no inflectional endings, but had the child said, "My mommy's favorite is candy...," "mommy's" would be counted as two morphemes.

The next question you're probably thinking is, "What does an index of language development tell me?" By itself--in isolation--absolutely nothing. But in using it to see where a child is functioning at one point as opposed to a later time, you can plot progress. Also it is an excellent device for identifying children who might need more

opportunities for language enrichment. If one would examine the language sample obtained from the child in terms of semantic roles and relations, one could see whether or not the child is merely using nouns and leaving out all inflections, copular be, etc. Then situations could be created for the child to use the little words, etc. Correction of the child's language in terms of negative feedback would not accomplish the goal teachers have in mind.

As study after study is indicating (Dinnan, 1974), many children and later adults who are illiterate have difficulty with the words that signify relations in our language. What would you tell a child the word of means? First of all, it's a funny word because it has strange letters as its spelling. How many children have you noted with a puzzled look on their face when you tell them o f is /av/?

Couple the lack of sound-symbol correspondence to the fact that this word as well as other words like it that make up 50% of our language has no meaning in isolation to find the source of difficulty that such words as of, and the, and on have for many language users.

Within that language rich environment, be sure that concepts, words, etc. are introduced with other pieces of language around them--not in isolation. Dr. Dick Walker in Australia has also been delving into this aspect of language development and reading. Through interviews, tapings, etc. he has attempted to determine what meanings a child has for on. Does the child understand "on the table," but not "on the 15th of the month?" The study represents years of work and is getting to the publishing point. Materials are being created that incorporate the language concepts understood by the child as well as provisions for providing

experiences that will enable a child to comprehend other concepts necessary to communication.

Further relational investigations deal with a child's perception of his physical world. Investigators are further delving into the child's acquisition of language analysis. Language studies conducted by H. Clark (1973) indicate that a child acquires English expressions for space and time by learning to apply these expressions to knowledge he already has about space and time. As Clark points out, the child is born into our world with an upright posture and the physical capabilities to see and hear events or objects in our world. Children manipulate themselves in our world discovering their position in space and time. Clark maintains that a child must establish this perceptual space in our physical world before he/she can grasp the concept represented by the language symbol. These relationships--the ones signified by on, in, for, etc. are a very necessary part to communication.

When providing children with a language rich environment, these words and their relationships must be considered. It has too often been the case that we have measured the complexity of words in our language by their number of letters rather than the complexity of the concepts and relationships that they represent. The complexity of these relationships is very real; and upon close examination, it is evident that there are many ways in which we draw upon our perceptions to communicate these relationships.

To find position in space, we locate an object along a distance scale by the use of reference points, reference lines and reference planes. However, we also use the symmetrical nature of the human body to define such concepts as front-back, right-left, etc. This leads to

what H. Clark (1973) describes as the canonical encounter, which occurs when one person is face to face with another, an event that changes one's perception of space. Our English spatial terms, are identical to those identified in perceptual space.

Specifically, the identical features are:

1. (Spatial language) shows the universal use of parts, lines and planes of reference, both in prepositions...and in adjectives....
2. There are three specific primary planes of reference: (a) ground level, with upward positive and downward negative; (b) the vertical left-right plane through the body, with forward positive and backward negative; and, (c) the vertical front-back plane of symmetry through the body, with right and left both equally positive.
3. (Spatial language) requires the use of canonical encounter to count for the egocentric uses of terms like front and back.

(H. Clark, 1973, p. 48)

The same kinds of events can be portrayed to time referents as well. Clark points out that the learning of specific spatial and temporal terms must wait until the child knows the appropriate properties of perceptual space and time. In so learning these relationships he/she can learn the correct rules of application.

The investigators who are studying child language are telling us that we must not ignore semantics. As E. Clark (1973) states, it is essential to know what a child means by what he says and to know how he understands what he hears.

No longer can we study and describe the young child's language by syntactic structure in terms of pivot and open class grammar. Rather

we must refer to Brown's rich interpretation and carefully examine semantic roles and relations. The learning process involved in language acquisition and development appears to provide clues to the child's overall learning process. The theories the child is constantly testing should be further developed in the schools.

It is in the schools that the language-rich environment plays such a big role. Children come with questioning minds possessing a variety of experiences in which they have learned much. They have spent five years testing their hypotheses about many things and especially about language. All that they can say and understand are the results of interaction with their world. We can use an index to get a general measure of the level of language they are using. Yet this measure will be valueless in a stifling, language-poor environment.

It is difficult to perceive our schools as a language-poor environment, perhaps--especially, if one considers the volumes of books, workbooks and ditto sheets each child is subjected to. Yet, consider how initial language is learned. As observed by investigators, it is through interaction with others--adults and eventually peers. Unless our classrooms are structured in such a way that they allow for interchange and interaction, they are indeed language-poor in the true sense of the word. What we are talking about is communication, and communication can take place only when two individuals have a common referent.

Therefore our language cannot be something that is entirely idiosyncratic; for if the meanings lie merely within the speaker and not within the listener, there is no communication and the only utterances that exist are noise. Someone once said that the mind is like a checkerboard with some empty spaces and some full squares. If these squares

are filled with meaning referents, there can be communication. But for every empty square there can be no communication. Empty squares that are filled by experience become base referents for communication as long as the partner in communication also has that experience. Communication occurs when two individuals approach a commonality of ideas in using the symbols of language.

That is not to say, however, that language is not somewhat idiosyncratic. By the very nature of individuals, this phenomenon occurs. Consider the sentence: "The boy went to the store."

After hearing this sentence, one might possibly visualize an eight- or nine-year-old on the way to a grocery store. Yet the initiator of the sentence could be speaking of his twenty-nine-year-old son--hardly a boy by most of our standards. Is this conception of a boy wrong? Of course, not. We can't say that the sentence another utters is wrong. Yet picture a child whose language does not attain the same range of meaning as others. What happens to a child who is not exposed to the experiences that underlie the ability to communicate in our language? The literature is telling us that this child is heading down the illiterate path.

In a language-poor environment where all the input is coming from a teacher, with no provision for hypothesis testing, how does this child establish an association? The challenge to teachers is that in lieu of a language-poor environment, the classroom should be a stimulus for language. Turn the classroom into a language-rich environment. Opportunities for discussion and interaction are essential in this rich environment. We must not ignore the importance of meaning in communication. If this fact is recognized, no word, no skill will be taught

in isolation. Every experience provided for the child will be structured to enhance his learning.

To illustrate the importance of experience can be seen in several other studies. The concept of relational referents is the focus of a study conducted by Eve Clark (1973). Instead of examining the semantic functions of words in utterances, she looks at the issue of how words are used to refer to or represent external objects and events appropriately. Her hypothesis, the Semantic Feature Hypothesis, states that when the child first begins to use identifiable words, he does not know their full (adult) meaning. He only has part of the features that identify the entire meaning. Therefore, the acquisition of semantic knowledge then will consist of adding more features of meaning to a word until this combination of features matches the adult word.

Other investigators have looked at the role of semantic features and their importance to the development of language. E. Clark further postulates that the first features a child uses are likely to be a direct result of his/her perceptions. At a later time, the child learns to add additional features and eventually categorize these into some type of system.

A child who is cueing on fewer features than the adult is often the victim of overgeneralization. Thus, the label doggie may be used for cows, dogs and horses--any four-legged animal. These three adult labels are included under dog until he encodes more features. This lends credence to the overgeneralization aspect of E. Clark's theory. In other investigations (E. Clark, 1971), she found that children first learn that words such as before and after deal with time. Next they

learn that these words refer to sequence and, in fact, the last feature learned is that after is the opposite of before (E. Clark, 1971).

The Semantic Feature Hypothesis indicates that a child is storing semantic features about the words he has from the earliest moment on. It would appear that the child with the proper experiences can use his/her mental processes to break the complex code of language.

The overgeneralization principle has been discussed by Donaldson (1964). She found that for young children less is more, just as E. Clark (1971) discovered that children interpret after as meaning the same thing as before. The children seem to have the features necessary for realizing that before and after deal with a time spectrum and that less and more deal with an amount spectrum. It is at a later time that more semantic features are added to differentiate less from more and before and after.

This is where the role of the classroom becomes very important. Just as Donaldson and Clark have noted, it is often the case that children have the labels for many words, thus insinuating that they have the concepts. More research needs to be done with school-age children to determine the extent to which they can use labels without having the underlying concepts, the labels refer to, in adult language. Until this research is done, however, it would appear that it is safe to assume that, indeed, children have labels without having all the features necessary for complete understanding. Therefore, by structuring the classroom as a language-rich environment, teachers can insure that children have the necessary interaction to continuously add semantic features.

What is research telling us about language development? It's telling us that meaning is the key to continued development and our classrooms must be facilitators of meaning. One caution must be made so that one does not make a wrong assumption about language users. Consider once again the young child who first uses his own approximation of the word water to get a drink. Through interaction with adults, the child learns the adult manner for requesting a glass of water. Does that mean he has a meaning for every part of the utterance? Indications are that this is probably not the case. Children learn to use adult speech but are sometimes using language without full comprehension of the essential parts. The caution, therefore, is not to assume that a child has meaning for every word he/she utters. Most children when they enter school have a fine command of oral language. Yet remember what Clark, Dinnan and others have to tell us. It is necessary for the child to associate language terms to his/her perceptions of time and space. Therefore, even though the child may have certain words as part of his expressive language, he may not have full command of their relational meanings.

Structuring a classroom so that it is a language-rich envirnoment should provide experiences for all the children.

In conclusion, investigators are telling us to provide a language-rich environment to make the environment one that is conducive to hypothesis testing, thus insuring continued learning, and to get involved in this search for knowledge of child language. The observations and perceptions of the classroom teacher are needed to insure our continued growth into an understanding of the complexity of language.

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